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CARDIAC MRI PREDICTORS OF MORTALITY IN PATIENTS WITH PULMONARY ARTERIAL HYPERTENSION

Oral Contributions
West, Room 3002
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Authors: *Konstadina Darsaklis, Mariella Vélez-Martinez, Susan Matulevicius, Sonja Bartolome, Fernando Torres, Kelly Chin, University of Texas Southwestern Medical Center, Dallas, TX, USA*

Background: Pulmonary arterial hypertension (PAH) often leads to right ventricular (RV) dysfunction. Few studies have quantified these parameters with cardiac MRI (cMRI). We hypothesize that RV function assessed by cMRI will predict survival in PAH.

Methods: Patients undergoing cMRI and consenting to a long-term outcomes study were enrolled. The following were evaluated: LVEDVi, RVEDVi, LV massi, LVSVi, RVSVi, LVEF, RVEF (i=indexed to BSA). Predictors of survival were determined by Cox-proportional hazards.

Results: 103 PAH patients with a mean age of 50 years were enrolled (idiopathic 55, connective tissue disease 32, other 16). Most patients (96%) were on PAH therapy including 24% on intravenous/subcutaneous prostacyclins. Median follow-up time was 2.9 years. Survival was 93%, 86% and 78% at 1, 2 and 3 years respectively. By univariate analysis, RVEF (p=0.002, HR 0.95), RVEDVi (p=0.016, HR 1.01), and LVmassi (p=0.007, HR 1.04) were significant predictors; no other MRI variables were significant. In a multivariate model, only RVEF was a significant predictor of outcome, but many variables were highly collinear. Survival by RVEF is shown in figure 1; patients with a very low RVEF had worst outcomes, with a 1 year mortality of 30%, and no patients with an RVEF>60% died. Patients with lower RVEF's also had significantly greater hemodynamic abnormalities, including higher RA pressure and lower median PA saturation.

Conclusions: RVEF is a significant predictor of mortality in PAH patients receiving therapy.